CLAIMS

1. A power amplifier comprising:

current command means for outputting an exciting current command signal based upon a current target value to be supplied to a body to be driven;

a current amplifier that amplifies the current command signal to supply the resulting current to the body to be driven; and

current detecting means for detecting a current flowing through the body to be driven,

wherein the current command means feeds back a current detection value obtained by the current detecting means so that the exciting current command signal is controlled so as to make the current detection value equal to a current target value.

2. A magnetic bearing, which is used for supporting a rotating body in one control axis direction in a non-contact state,

comprising:

a pair of electromagnets that are placed in a manner so as to sandwich the rotating body from the two sides in the control axis direction so as to support the rotating body at a target position in the control axis direction in a non-contact state by using a magnetic attracting force;

displacement detecting means for detecting a displacement

of the rotating body from the target position;

exciting current target value determining means for determining an exciting current target value to be supplied to each of the electromagnets based upon the displacement detection value of the rotating body; and

two power amplifiers that amplify the exciting current target value so as to supply exciting currents to the respective electromagnets,

wherein: each of the power amplifiers comprises current command means for outputting an exciting current command signal based upon the exciting current target value, a current amplifier that amplifies the exciting current command signal to supply the resulting exciting current to the electromagnet and current detecting means for detecting the exciting current flowing through the magnet, and has a structure in which the current command means feeds back an excited current detection value obtained by the current detecting means so that the exciting current command signal is controlled so as to make the exciting current detection value equal to the exciting current target value.

3. The magnetic bearing according to claim 2, wherein: the control axis is maintained horizontal, and the exciting current target determining means determines an exciting current target value with respect to each of the electromagnets, by using only

the control current that varies depending on the displacement detection value of the rotating body as the exciting current.

4. The magnetic bearing according to claim 2, wherein: the control axis is not horizontal, and the exciting current target value determining means determines the exciting current target value by using only the control current that varies depending on the displacement detection value of the rotating body as an exciting current, with respect to the electromagnet on the lower side, and also determines the exciting current target value by using a current formed by combining a predetermined bias current and the control current that varies depending on the displacement detection value of the rotating body as an exciting current, with respect to the electromagnet on the upper side.